PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-327189
(43)Date of publication of application : 12.12.1995

(51)Int.Cl. H04N 5/76
G11B 27/28
H04N 5/782
H04N 5/7826
H04N 5/91
H04N 9/79

(21)Application number : 06-120215
(22)Date of filing : 01.06.1994

(71)Applicant : MATSUSHITA ELECTRIC IND CO LTD
(72)Inventor : NAKAHAMA MASARU
KEISHU SEIICHI
HASHIMOTO ATSUSHI

(54) VIDEO INFORMATION RECORDING TAPE AND ITS RECORDING AND REPRODUCING DEVICE

(57)Abstract:
PURPOSE: To reproduce and output a video information signal to be selected as a video image desired of making a hard copy on a tape efficiently.
CONSTITUTION: A selected video signal such as a track number being address information with respect to a tape position and date and time stored in a sub code area 3 of a 5th frame (F5) or the like is recorded on a tape header 4 on a tape 1. The recording is implemented by reproducing the tape 1, controlling a 1st switch 17 every time a video image whose print is desired appears, reading data from a sub code corresponding to the video image, storing the data tentatively in a

memory 16, and writing a content in the memory 16 to the tape header 4 after the tape is rewound by the operation of a 2nd switch 18 after the end of selection. In the case of reproduction, the selected video image is sequentially reproduced according to the address information of the tape header 4 and printed out by a video printer or the like.

LEGAL STATUS

[Date of request for examination]	26.06.1995
[Date of sending the examiner's decision of rejection]	
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]	
[Date of final disposal for application]	
[Patent number]	3102264
[Date of registration]	25.08.2000
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

CLAIMS

[Claim(s)]

[Claim 1] The image information record tape characterized by being collectively recorded by the address information about the field of each image information signal which is the tape on which the image information signal was recorded at least, and was chosen as the predetermined field of said tape, or the tape location of a frame.

[Claim 2] The image information record tape according to claim 1 characterized by the selected field or the selected frame of each video signal being the field or the frame of an image information signal which should be carried out hard copy (print).

[Claim 3] The image information record tape according to claim 1 on

which address information about the field of each selected image information or the tape location of a frame is characterized by what was recorded on the abbreviation head location of a tape.

[Claim 4] A means to play the tape on which the image information signal was recorded, and a playback image selection means to decide whether for it to reproduce alternatively behind and output the playback image of each image information signal, or not carry out at the time of said tape playback, The recording device characterized by having a storage means to memorize the address information about the tape location where the image information signal chosen with said playback image selection means was recorded, and a record means to record the contents of said storage means, or its part on the predetermined field of said tape.

[Claim 5] The recording device according to claim 4 characterized by each image information signal chosen by the playback image selection means being an image information signal which should be carried out hard copy (print) to behind.

[Claim 6] The recording device according to claim 4 with which a storage means is characterized by memorizing the time code recorded on the tape as address information about a tape location.

[Claim 7] The recording device according to claim 4 with which a storage means is characterized by memorizing the truck number which shows the number of the recording tracks from the head of the tape recorded on the tape as address information about a tape location.

[Claim 8] The recording device according to claim 4 with which a storage means is characterized by memorizing the date and the hour entry, time code, or truck number recorded on the tape as address information about a tape location.

[Claim 9] The regenerative apparatus characterized by having a playback output means to transport and suspend said tape based on the address information about the tape location of each selected image information signal recorded on the predetermined field of the tape on which the image information signal was recorded, and to reproduce and output said each image information signal.

[Claim 10] The regenerative apparatus according to claim 9 characterized by each selected video signal being a video signal which should be carried out hard copy (print).

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention makes it easy to extract alternatively each image information signal recorded on the tape, and relates to the tape on which the information which can be performed by putting in block processing like hard copy (print) of the extracted image information signal was recorded, and its record and regenerative apparatus.

[0002]

[Description of the Prior Art] In recent years, the movie camera (it only abbreviates to a movie below) which can photo a dynamic image and a static image easily spreads, the digital storage method with which the recording method of a signal also progressed further from the conventional analog recording method, and aimed at high definition-ization is proposed, and development towards commercialization is also furthered. This kind of movie records image information and speech information on the magnetic tape held in the cassette through the magnetic head, and information, such as identification code of a dynamic image or a static image, the days and months and time amount which were recorded, photography conditions, and text data, is further recorded on coincidence as information in connection with an image and voice by the digital storage method. By equipping a regenerative apparatus, this magnetic tape (it only abbreviates to a tape below) is read, and is played by CRT etc. as a visible image. It is requested that hard copy of the 1 coma 1 coma included in the mind of this reproduced dynamic image and a static image is carried out with a video printer etc. Print time amount per sheet the way of this hard copy 60 - 80 seconds, and since it is long, Rather than it outputs and carries out hard copy (it abbreviates to a print below) of the video signal to a video printer every, whenever a playback image to print carries out a 1 coma 1 coma appearance A counter, a time code, etc. which show the location where the image to print is recorded are memorized in memory, such as a microcomputer, one after another as the address of the image, and to be able to bundle up collectively and print based on the memorized address is demanded after tape playback. However, the method which memorizes the address in memory, such as a microcomputer mentioned above, and carries out a package print has the trouble that the contents of memory disappear, when the power is turned off. Moreover, although recording a print marker in some recording tracks is described to a video signal and coincidence by JP,4-312084,A, when a package print is performed after

depending for a print marker, by this method, it will print to the image for which it does not wish. Furthermore, there is a trouble that it cannot do even if he wants to carry out a package print also including the image which is not recording the print marker.

[0003] on the tape of a digital storage method, in order to solve this problem, whenever an image to carry out a package print appears behind, how to carry out additional record of the print marker information can be considered to the field (following sub-code area -- or it only abbreviates to a sub-code) which records the information corresponding to a video signal, and it inquires to it at the time of playback. the video signal specified whenever it performed the sub-code search from the head of a tape in picture reproducer and detected the print marker information in a sub-code to carry out a package print -- each time -- reproducing -- the output signal -- connecting -- having had -- a video printer -- etc. -- a print -- carrying out -- having .

[0004] Hereafter, the conventional example of the tape on which this kind of print marker was recorded, and the record and the regenerative apparatus which record and reproduce a print marker is explained, referring to drawing 4 and drawing 5 .

[0005] Drawing 4 shows the mimetic diagram of the conventional tape format. The left-hand side of drawing is the head of a tape in the mimetic diagram of the tape on which, as for 101, an image and voice were recorded in the digital storage format in drawing 4 . The divided field 2 is the area where the image and voice digitized for every frame were recorded. The information in connection with each image and voice in the divided field 3 (sub-code data), For example, it is the sub-code area where the identification code of the TAG codes, such as an index, a time code, a truck number, a dynamic image, or a static image, the days and months and time amount which were recorded, photography conditions, text data, etc. were recorded.

[0006] In the video signal recorded on the tape 101, and for example, the 5th frame (F5) shown by scattered half tone dot meshing, When carrying out auto-print of the playback image of the 9th frame (F9), the 14th frame (F14), and the 18th frame (F18) collectively In addition to the sub-code data described previously, the print marker is recorded on the corresponding sub-code 3 (sub-code area shown with the slash on each image and voice truck 2 in this drawing).

[0007] Usually, although the data of a sub-code 3 are recorded on an image and voice, and coincidence, additional record of the print marker for package auto-prints is carried out later at a sub-code 3, looking at a playback image.

[0008] Next, actuation of the recording device when recording a print marker is explained. Drawing 5 is the flow chart showing a motion of the tape 101 at that time. First, a tape 101 is played, if a playback image to print appears, the time code in the sub-code 3 corresponding to the image will be memorized in the memory of the microcomputer which controls a system temporarily, and a tape 101 will be changed into the condition of a still. Although data are preferentially arranged so that the time code in the sub-code area 3, a date and time amount, and a truck number can also usually read reproductive other throw / still correctly, other data serve as arrangement which can usually read only the time of playback to accuracy. For this reason, the following step is actuation which reads those contents and is evacuated temporarily, in order to protect the already recorded sub-code data, when recording a print marker. After only the distance which stabilizes transit of a tape 101 on the reading point in the reverse direction from a still condition is rewound and a tape 101 passes through a still condition, it usually runs in the direction of a forward at a rate. When it comes to the time code location previously memorized in memory, all the contents of the sub-code area are read, and it memorizes in the memory of a microcomputer. The following step is the actuation which performs a print marker's additional record, and after it passes through rewinding and a still condition in the reverse direction to a possible distance by which transit of a tape 101 is first stabilized on the write-in point, it usually runs in the direction of a forward at a rate. It is made the sub-code data which added the print marker to the contents previously remembered to come to the truck location where the video signal printed [which prints and writing-points at] was recorded, and corresponding sub-code area is rewritten. Whenever an image to print this the actuation of a series of appears, the tape 101 shown in drawing 4 is created repeatedly.

[0009] When performing package auto-print, if a tape 101 is played with the regenerative apparatus connected to the video printer etc. and a print marker exists in the sub-code area 3, a tape 101 will stop, still playback of the corresponding video signal will be carried out, and the still drawing will be outputted to a video printer. Since the still playback in a digital storage method repeats and outputs the video signal usually incorporated by image memory in the state of playback, unlike the conventional analog recording method, it does not have noise generating by the locus and truck locus of the reproducing head differing from each other at the time of still playback. Therefore, the same high-definition still drawing as playback is usually obtained also

for still playback.
[0010]
[Problem(s) to be Solved by the Invention] However, the technical problem shown below occurs in the system which consists of a tape on which the above print markers were recorded, and its record and regenerative apparatus.
(1) A print marker's record is performed to one playback one-sheet image, and as the write-in time amount is shown in drawing 5 , require the operating time t1 for the already recorded sub-code data evacuation, and the print marker write-in operating time t2. Since actuation of a mechanism is actually accompanied by this time amount in order to change the tape transit direction, it takes about about 7 to 8 seconds. The thing for which this time amount is required for every image to record a print marker will require trouble very much, and will offer a user-unfriendly system, so that that image increases.
(2) after a print is completed, when the case where he wants to kill a print marker conversely is considered, a user does not immediately understand the location marked in this system, but it plays one tape to the last, and is reading about all print mark locations -- begin by carrying out and understand. Furthermore, even if a mark location is known, in order to eliminate each, with other sub-code data saved, the same actuation as the record shown by drawing 5 will be performed to one one-sheet image which wants to kill a print marker. Therefore, print marker elimination also requires time amount very much, and user-friendliness is a bad system.
(3) It is necessary to surely reproduce to the last of a tape, and when carrying out a package print, even if the marked image exists only near the head of a tape, it is the system made into the futility of time amount and power, so that the die length of a tape is long.
[0011] In order that this invention may solve the above-mentioned technical problem in view of this point, it aims at offering the system by which it is efficiently refreshable and discharge of selection can also perform efficiently the video signal with which it was chosen on the tape.
[0012]
[Means for Solving the Problem] The 1st this invention is the image information record tape on which the address information about the field of each image information signal which is the tape on which the image information signal was recorded at least, and was chosen as the predetermined field of a tape, or the tape location of a frame bundled up, and was recorded, in order to attain the above-mentioned purpose.

[0013] A means by which the 2nd this invention plays the tape on which the image information signal was recorded, A playback image selection means to decide whether for it to reproduce alternatively behind and output the playback image of each image information signal, or not carry out at the time of tape playback, It is a recording device with a storage means to memorize the address information about the tape location where the image information signal chosen with the playback image selection means was recorded, and a record means to record the contents of the storage means, or its part on the predetermined field of a tape.

[0014] The 3rd this invention is a regenerative apparatus with a playback output means to transport and suspend a tape based on the address information about the tape location of each selected image information signal recorded on the predetermined field of the tape on which the image information signal was recorded, and to reproduce and output each image information signal.

[0015]

[Function] By the above mentioned configuration, this invention writes the address information about the tape location of the selected image information signal in the predetermined field of a tape collectively, and at the time of playback, it is only referring to the information written in this predetermined field, and it becomes possible to identify the selected image information signal.

[0016]

[Example] Below, a drawing is used and explained about the 1st example of this invention.

[0017] Drawing 1 (a) is the mimetic diagram of the tape recorded in the format in the 1st example of this invention, 1 is a tape, and the image and voice area and sub-code area recorded in the format as the conventional example with 2 and 3, and 4 is the tape header on which the address information of each video signal with which it was chosen on the tape was recorded. [same] Drawing 2 is the example of the address information recorded on the tape header 4, and each data is stored per data pack which consists of 5 bytes, as shown in this drawing, and 1 byte of the head of each data pack (it only abbreviates to a pack below) is assigned to the header which shows the contents of data of the pack. In this example, the top truck number (Trk No), and a date and time amount of the video signal currently recorded on the sub-code area 3 are used as address information of each selected video signal. A truck number is expressed with 24-bit binary code, and in a pack 6, the date is expressed in a BCD code also as days and months, and time amount as

well as the date is expressed with a BCD code, and as shown in this drawing, it is stored in a pack 6 at a pack 5. These three packs will be prepared for every selected video signal.

[0018] By the way, when record by which the break point (non-recorded part) of a signal is made on a tape 1 is carried out, the continuity of a truck number is not guaranteed but it becomes impossible for the same truck number to exist on two or more tapes 1, and to choose a video signal as a meaning. For this reason, in this invention, in addition to a truck number, a date and time amount are adopted as address information, and improvement in a specific precision of a selection video signal is aimed at.

[0019] In this example, in order to lessen the number of bits of the data stored in the tape header 4, the truck number was used, but the same purpose can be attained even if it uses a well-known time code. Moreover, although installation of the concept of the frame number which shows the number of the frames of the video signal from a tape head location is also considered, I think that this is contained in the time code which counts a frame number.

[0020] Next, the record and the regenerative apparatus which records the address information mentioned above to the tape header 4 which is the 2nd and 3rd invention, and is reproduced are explained based on drawing 1 (b) and drawing 3 .

[0021] Drawing 1 (b) is the block diagram of the example of the record and the regenerative apparatus of this invention, and 8 changes the video signal inputted into digital one from an analog. Furthermore, the record digital disposal circuit which processes addition of compression and an error correction sign etc., The microcomputer which processes the data which record 15 on the sub-code area 3 or the tape header 4, The modulation circuit which changes the sub-code data whose 9 is the output of the record digital disposal circuit 8, and the output of a microcomputer 15 into the data stream recorded on a tape 1, The record amplifying circuit where 10 impresses a current to the magnetic head 11 according to the output of a modulation circuit 9, The playback amplifying circuit where 11 is the magnetic head which write the signal on a tape 1, and 12 amplifies the regenerative signal on a tape 1 to sufficient level in which signal processing is possible, The demodulator circuit to which 13 restores to the data stream in which the regenerative-signal processing circuit 14 and a microcomputer 15 can read the output signal of the playback amplifying circuit 12, 14 elongates the data compressed after correcting or retouching the error produced in the image information signal acquired from the demodulator

circuit 13. Furthermore, the regenerative-signal processing circuit outputted as a video signal of an analog, memory which memorizes the address information of the video signal with which 16 was chosen, The 1st switch whose 17 chooses a video signal, the 2nd switch which gives the trigger by which 18 records the contents of memory 16 on the tape header 4, and 19 are tape transit control circuits which control the transit mode of a tape 1 by the instruction from a microcomputer 15. Drawing 3 is the memory map Fig. of the address information memorized by memory 16, and the address information is memorized by the sequence that the video signal was chosen at the small order of the address of memory 16.

[0022] It explains assuming that it is chosen in order that the playback image of the 5th frame (F5), the 9th frame (F9), the 14th frame (F14), and the 18th frame (F18) shown by scattered half tone dot meshing in the video signal recorded on the tape 1 may bundle up, for example and may carry out auto-print now, as shown in drawing 1 (a).

[0023] When the video signal [playback is performed by the tape transit control circuit 19 from the head of a tape 1, and] (F5) of the 5th frame to print appears, the tape transit control circuit 19 is controlled by actuation of a user, and still playback of the image is performed. Next, if the 1st switch 17 is operated, from the sub-code data reproduced through the playback amplifying circuit 12 and the demodulator circuit 13, a microcomputer 15 reads a truck number, and a date (days and months) and time amount (time), and as shown in drawing 3 , it stores the data in memory 16. At the [0000] addresses of memory 16, 8 bits of high orders of the truck number of F5 8 bits of middle (medium) are stored in [0001] addresses, and 8 bits of low order are stored in [0002] addresses. Then, at the data of the moon, and [0005] and [0006] address, the data of a part are stored in [0003] and [0004] addresses in the data at the time, and a [0009] and [000A] address at the data of a day, and [0007] and [0008] address, respectively. If the video signal (F9) of the 9th frame for the tape transit control circuit 19 to run a tape 1, and print on a degree after this actuation is completed appears, the same actuation as the above is repeated, and it is updated as the contents of memory 16 show drawing 3 . After a microcomputer 15 rewinds a tape 1 to a head location through the tape transit control circuit 19, it is made it to run in the direction of a forward at a stationary rate from a head location, if such actuation is repeated, all selections of the video signal on a tape 1 are completed and the 2nd switch 18 is operated. The address information of each video signal chosen from memory 16 is read one by one, data are reformatted.

into the packed decimal number of drawing 2 , and it records on coincidence to the tape header field on a tape 1 through a modulation circuit 9, the record amplifying circuit 10, and a head 11.

[0024] Next, the tape 1 recorded with the above recording devices is played, and actuation of the regenerative apparatus which outputs the selected video signal corresponding to the address information recorded on the tape header 4 is explained.

[0025] According to the contents of the tape header 4, contrary to the time of record, a microcomputer 15 plays a tape 1 from a head through the tape transit control circuit 19, reads altogether the contents written to the tape header 4 through a head 11, the playback amplifying circuit 12, and a demodulator circuit 13, and stores each address information in memory 16 in the mode which outputs the selected video signal. A microcomputer 15 will shift to still actuation, if a tape 1 is fast forwarded and the purpose location is arrived at in it through the tape transit control circuit 19 to the first purpose address position according to the address information of memory 16, after this storing actuation finishes, and still playback of a selection image is performed. At this time, a playback video signal is outputted to the video printer connected through the head 11, the playback amplifying circuit 12, the demodulator circuit 13, and also the regenerative-signal processing circuit 14. After print time amount passing with a video printer, a microcomputer 15 operates the tape transit control circuit 19 so that it may go to the following purpose address position, and repeats the same actuation as the point. By repeating such actuation, the selection video signal recorded on the tape header 4 is outputted automatically one by one.

[0026] According to this example, it becomes possible to acquire the following effectiveness as mentioned above.

(1) Since the address (print marker) of these video signals is collectively recorded on the head location of a tape after choosing a video signal (print) to output behind, compared with the former, marker chart lasting time can be shortened sharply.

(2) Since the actuation which reproduces rewriting of a sub-code and all tape 1 volumes does not follow at the time of a marker's elimination and rewriting that what is necessary is to operate only a tape header to rewrite the address information of the one section when you want to erase the address of the selected video signal or, compared with the former, time amount compaction is sharply possible.

(3) It is possible to refer to the address of the video signal with which a tape header is only reproduced and it was chosen in one tape.

(4) When outputting only selection images, such as a package print, it is not necessary to necessarily reproduce to the last of a tape.
[0027] by the way, although the image which wishes to have a package print was chosen and the address information was recorded on the tape header in this example, it comes out not to mention the ability to use to transmit alternatively the image recorded on the tape through an image communication device as an application of others of this invention.
[0028]
[Effect of the Invention] The video signal with which it was chosen on the tape by referring to the information which wrote the address information about the tape location of the selected image information signal in the predetermined field of a tape collectively , and was written in this predetermined field at the time of playback so that clearly from the above explanation reproduces efficiently , an output is possible , and since the system which can also perform discharge of selection efficiently can offer , a so-called size has the effectiveness .

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] (a) The mimetic diagram of the tape format in the example of this invention
(b) The block diagram of one example of the record and the regenerative apparatus of this invention
[Drawing 2] The data array Fig. of the tape header unit in this example
[Drawing 3] The explanatory view showing the contents of the memory in this example
[Drawing 4] The mimetic diagram of the conventional tape format
[Drawing 5] The flow chart showing actuation of the conventional recording device
[Description of Notations]
1 Tape
2 Image and Voice Area
3 Sub-code Area
4 Tape Header
5 Data Pack
6 Data Pack

7 Data Pack
15 Microcomputer
16 Memory
17 1st Switch
18 2nd Switch